Amendments to the Specification

Please replace the paragraph beginning at page 1, line 5 with the following rewritten paragraph:

A related, co-pending application is U.S. patent application Serial No. 10/005,650 [[___,___]] filed concurrently herewith by Foschini et al., and assigned to the assignee hereof, entitled "Wireless Communication System With Interference Compensation".

Please replace the paragraph beginning at page 7, line 1 with the following rewritten paragraph:

As can be seen in Figure 2a, base station 1155-M receives a received signal that includes all three uplink signals 12551, 12552, and 12553. Because these signals scatter off of objects in the environment and because they have a wide angle of propagation, typically somewhere between 60° and 360°, these signals interfere with one another, thereby negatively affecting the ability of base station 1155-M to use the received signal to accurately decode uplink signals 12551, 12552, and 12553. Multi-user detection can be used to compensate for some of such interference. To use multi-user detection the base station should decode these received signals in an order. The base station then can either 1) determine the theoretical highest system throughput when multi-user detection uses this order, as in the prior art, and assign the data rates and/or power levels based on this calculation or 2) as described in co-pending U.S. patent application Serial No. 10/005,650 [[___,___]] filed concurrently herewith by Foschini et al., and assigned to the assignee hereof, entitled "Wireless Communication System With Interference Compensation", and incorporated herein by this reference, use multi-user detection using this order and determine the data rates and/or power levels assigned to the mobile terminals based on the requirements of the mobile terminals without regard to the interference introduced by the terminals having a higher index in the order, as described in more detail below.

Please replace the paragraph beginning at page 13, line 3 with the following rewritten paragraph:

On the downlink, each mobile terminal 12051-D, 12052-D, and 12053-D receives all of the downlink signals 15051, 15052, and 15053 transmitted by base station 1155-D and needs to decode the particular signal directed to it. These signals interfere with one another, thereby negatively affecting the ability of the mobile terminals to accurately decode the signal directed to the mobile terminals. Dirty paper coding can be used to compensate for some of such interference. To use dirty paper coding, base station 1155-D should impose some sort of order on the mobile terminals before it transmits the signals to the terminal. The order determines who is being interfered with by whom. The base station then can either 1) determine the theoretical highest system throughput when dirty-paper coding uses this order, as in the prior art, and assign data rates and/or power covariance matrices based on this calculation, or 2) as described in co-pending U.S. patent application Serial No. 10/005,650 [[___,___]] filed concurrently herewith by Foschini et al., and assigned to the assignee hereof, entitled "Wireless Communication System With Interference Compensation", use dirty paper coding using this order and determine the data rates and/or power levels assigned to the mobile terminals based on the requirements of the mobile terminals without regard to the interference introduced by the terminals having a higher index in the order, as described in more detail below.

Please replace the paragraph beginning at page 18, line 1 with the following rewritten paragraph:

from other terminal's signals, and thus allow some mobile terminals to be phantoms to other mobile terminal. Particularly, the present inventors have realized that it would be desirable to have a system that provides a readily implementable system where on both links mobile terminals are phantoms to each other, referred to herein as a "phantom net" system. As described above,

the present inventors have also realized that such a phantom net system can be achieved on the uplink and the downlink on a predictable basis by using multi-user detection on the uplink and dirty paper coding on the downlink. Therefore, the present invention provides an implementable system where on both links mobile terminals are phantoms to each other. Furthermore, in accordance with co-pending U.S. patent application Serial No. 10/005,650 [[___,___]] filed concurrently herewith by Foschini et al., and assigned to the assignee hereof, entitled "Wireless Communication System With Interference Compensation", at least one mobile terminal will be compensated for the interference from all other mobile terminals on the uplink. Similarly, at least one mobile terminal, not necessarily the same one as on the downlink, will be so compensated on the downlink. Thus, all of the mobile terminals (except the terminal that has an index of one) in a particular portion of wireless system 100 will be phantoms to at least one mobile terminal.

Please replace the paragraph beginning at page 21, line 13 with the following rewritten paragraph:

As described above, with reference to Figure 2a, cell 1105-M can operate 1) using the assignment of data rates/power levels based on the highest obtainable system throughput for this particular system when multi-user detection uses this order or 2) using multi-user detection that uses this order and determining the data rates and/or power levels assigned to the mobile terminals based on the requirements of the mobile terminals without regard to the interference introduced by the terminals having a higher index in the order, and without the determination of the highest system throughput, in accordance with co-pending U.S. patent application Serial No. 10/005,650 [[___,___]] filed concurrently herewith by Foschini et al., and assigned to the assignee hereof, entitled "Wireless Communication System With Interference Compensation". Cell 2105–MS, shown in Figure 6, is the version of cell 1105-M that does not determine the highest system throughput and in which the base station and/or

some of the mobile terminals have multiple transmit and/or receive antennas. Cell 2105-M can be used in wireless communication system 100 instead of cell 1105.

Please replace the paragraph beginning at page 26, line 3 with the following rewritten paragraph:

As described above with reference to Figure 4a, cell 1105-D can operate 1) using the assignment of data rates/power levels based on the highest obtainable system throughput for this particular system when multi-user detection uses this order, or 2) using multi-user detection that uses this order and determining the data rates and/or power levels assigned to the mobile terminals based on the requirements of the mobile terminals without regard to the interference introduced by the terminals having a lower index the order, and without the determination of the highest system throughput, in accordance with co-pending U.S. patent application Serial No. 10/005,650 [[___,___]] filed concurrently herewith by Foschini et al., and assigned to the assignee hereof, entitled "Wireless Communication System With Interference Compensation". Cell 2105–DS, shown in Figure 7, is the version of cell 1105-D that does not determine the highest system throughput and in which the base station and/or some of the mobile terminals of cell 2105 have multiple transmit and/or receive antennas. Cell 2105-M can be used in wireless communication system 100 instead of cell 1105.

Please replace the paragraph beginning at page 29, line 1 with the following rewritten paragraph:

terminals without regard to the interference introduced by the terminals having a higher index the order, and without the determination of the highest system throughput, in accordance with co-pending U.S. patent application Serial No. 10/005,650 [[___,___]] filed concurrently herewith by Foschini et al., and

assigned to the assignee hereof, entitled "Wireless Communication System With Interference Compensation", and 2) using dirty paper coding on the downlink and multi-user detection improves the overall performance of the wireless communication system. In the preferred embodiment of the invention, the two are used together, as shown in Figure 8.

Please replace the paragraph beginning at page 29, line 18 with the following rewritten paragraph:

As described above with reference to Figure 5, cell 1105-DM can operate 1) using the assignment of data rates/power levels based on the highest obtainable system throughput for this particular system when multi-user detection uses this order, or 2) using multi-user detection that uses this order and determine the data rates and/or power levels assigned to the mobile terminals based on the requirements of the mobile terminals without regard to the interference introduced by the terminals having a higher index the order, and without the determination of the highest system throughput, in accordance with co-pending U.S. patent application Serial No. 10/005,650 [[___,___]] filed concurrently herewith by Foschini et al., and assigned to the assignee hereof, entitled "Wireless Communication System With Interference Compensation". Cell 2105–DMS, shown in Figure 8, is the version of cell 1105-DM that does not determine the highest system throughput and in which the base station and/or some of the mobile terminals of cell 2105 have multiple transmit and/or receive antennas. Cell 2105-M can be used in wireless communication system 100 instead of cell 1105.